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WWW : <https://blog.metu.edu.tr/yucelh>
Date of Birth : October 12, 1984
Place of Birth : Çorum, TURKEY
Citizenship : Turkish (TC)
- RESEARCH INTERESTS PDE constrained optimization (optimal control), Discontinuous Galerkin methods, Adaptive finite element methods, Phase Field Models, Uncertainty Quantification
- EDUCATION Middle East Technical University, Ankara, TURKEY
Ph.D., Scientific Computing Program, Institute of Applied Mathematics, July 2012,
 - Dissertation Title: *"Adaptive Discontinuous Galerkin Methods For Convection Dominated Optimal Control Problems"*
 - Advisor: Prof. Dr. Bülent KarasözenB.S., Department of Mathematics, June 2007
- RESEARCH VISITS September 2010-June 2011, Department of Computational and Applied Mathematics, Rice University, Houston, USA
 - supervised by Prof. Dr. Matthias Heinkenschloss
 - supported by 2214-International Doctoral Research Fellowship Programme, Turkish Scientific and Technical Research Council (TÜBİTAK)October 2008-December 2008, Department of Mathematics, Technische Universität Darmstadt, GERMANY
 - supervised by Prof. Dr. Stefan Ulbrich
 - supported by project: Optimization Theory, Methods and Applications, subject-related partnerships with universities in developing countries, German Academic Exchange Service (DAAD)
- EMPLOYMENT Middle East Technical University, Ankara, TURKEY
April 2017- Assistant Professor
Institute of Applied Mathematics
Middle East Technical University, Ankara, TURKEY

July 2016-August 2016 Part-time Lecturer
Department of Mathematics
February 2016-June 2016 Part-time Lecturer
Institute of Applied Mathematics

TED University, Ankara, TURKEY

February 2016-June 2016 Part-time Lecturer
Basic Science Unit

Max Planck Institute for Dynamics of Complex Technical Systems,
Magdeburg, GERMANY

October 2012-September 2015 Postdoctoral Researcher
Computational Methods in Systems
and Control Theory

Middle East Technical University, Ankara, TURKEY

September 2007-September 2012 Research Assistant
Department of Mathematics
April 2007-June 2007 Student Assistant
Institute of Applied Mathematics

AWARDS

”Thesis of the Year Award”, Middle East Technical University, Ankara, TURKEY,
2013

Turkish Scientific and Technical Research Council (TÜBİTAK)

October 2007-July 2012 2211-Doctorate Scholarship

September 2011 2224-Travel Award

September 2010-June 2011 2214-International Doctoral Research Fellowship

German Academic Exchange Service (DAAD) Scholarship, October-December
2008

LANGUAGE
SKILLS

Turkish (native), English (fluently), German (B1)

COMPUTER
SKILLS

Proficient in Matlab, C, C++, Latex, Linux/UNIX
Working Knowledge of Java, Fortran, HTML, SQL

PUBLICATIONS

Journal Articles Published/Accepted:

- M. Stoll and H. Yücel, *Symmetric interior penalty Galerkin method for fractional-in-space phase-field equations*, AIMS Mathematics 3(1), 66-95, 2018, doi: 10.3934/Math.2018.1.66.

- B. Karasözen, M. Uzunca, Ayşe Sarıaydın-Filibelioglu, and Hamdullah Yücel, *Energy Stable Discontinuous Galerkin Finite Element Method for the Allen-Cahn Equation*, International Journal of Computational Methods 15(3), 1850013, 2018, doi: 10.1142/S0219876218500135.
- P. Benner, and H. Yücel, *Adaptive symmetric interior penalty Galerkin method for boundary control problems*, SIAM Journal on Numerical Analysis 55(2), 1101–1133, 2017, doi:10.1137/15M1034507.
- M. Uzunca, T. Küçükseyhan, H. Yücel, and B.Karasözen, *Optimal Control of Convective FitzHugh-Nagumo Equation*, Computers & Mathematics with Applications 73(9), 2151–2169, 2017, doi:10.1016/j.camwa.2017.02.028.
- H. Yücel, M. Stoll, and P. Benner, *A discontinuous Galerkin method for optimal control problems governed by a system of convection-diffusion PDEs with nonlinear reaction terms*, Computers & Mathematics with Applications 70(10), 2414-2431, 2015, doi:10.1016/j.camwa.2015.09.006.
- H. Yücel, and P. Benner, *Adaptive discontinuous Galerkin methods for state constrained optimal control problems governed by convection diffusion equations*, Computational Optimization and Applications 62(1), 291-321, 2015, doi:10.1007/s10589-014-9691-7.
- Z. K. Seymen, H. Yücel, and B. Karasözen, *Distributed optimal control of time-dependent diffusion-convection-reaction equations using space-time discretization*, Journal of Computational and Applied Mathematics (261), 146-157, 2014, doi:10.1016/j.cam.2013.11.006.
- T. Akman, H. Yücel, and B. Karasözen, *A priori error analysis of the upwind symmetric interior penalty Galerkin (SIPG) method for the optimal control problems governed by unsteady convection diffusion equations*, Computational Optimization and Applications (57), 703-729, 2014, doi:10.1007/s10589-013-9601-4.
- H. Yücel, and B. Karasözen, *Adaptive Symmetric Interior Penalty Galerkin (SIPG) method for optimal control of convection diffusion equations with control constraints*, Optimization (63), 145-166, 2014, doi:10.1080/02331934.2013.801474.
- H. Yücel, M. Stoll, and P. Benner, *Discontinuous Galerkin finite element methods with shock-capturing for nonlinear convection dominated models*, Computers & Chemical Engineering (58), 278-287, 2013, doi:10.1016/j.compchemeng.2013.07.011.

Journal Articles in Review:

- P. Benner, and H. Yücel, *A local discontinuous Galerkin method for Dirichlet boundary control problems*. Submitted 2017.
- H. Yücel, M. Stoll, and P. Benner, *Adaptive discontinuous Galerkin approximation of optimal control problems governed by transient convection-diffusion equations*. Submitted 2016.

Conference Proceedings (Refereed) Published:

- H. Yücel, and P. Benner, *Distributed Optimal Control Problems Governed by Coupled Convection Dominated PDEs with Control Constraints*, in Assyr Abdulle, Simone Deparis, Daniel Kressner, Fabio Nobile, and Marco Picasso: Numerical Mathematics and Advanced Applications - ENUMATH 2013, Lecture Notes in Computational Science and Engineering, Springer International Publishing, 469-478, 2015, doi:10.1007/978-3-319-10705-9_46.
- B. Karasözen, and H. Yücel, *Optimal Control of Diffusion-Convection-Reaction Equations Using Upwind Symmetric Interior Penalty Galerkin (SIPG) Method*, in Stavros G. Stavrinides, Santo Banerjee, Suleyman Hikmet Caglar, Mehmet Ozer: Chaos and Complex Systems, Springer Berlin Heidelberg, 83-94, 2013, doi:10.1007/978-3-642-33914-1_11.
- H. Yücel, M. Heikenschloss, and B. Karasözen, *Distributed Optimal Control of Diffusion-Convection-Reaction Equations Using Discontinuous Galerkin Methods*, in Andrea Cangiani, Ruslan L. Davidchack, Emmanuil Georgoulis, Alexander N. Gorban, Jeremy Levesley, Michael V. Tretyakov: Numerical Mathematics and Advanced Applications 2011, Springer Berlin Heidelberg, 389-397, 2013, doi:10.1007/978-3-642-33134-3_42.

SCIENTIFIC MEETINGS

Research Talks:

2017

- *A Local Discontinuous Galerkin Method for Dirichlet Boundary Control Problems*, 18th French-German-Italian Conference on Optimization, Paderborn, September 25-28, 2017.

2016

- *Adaptive Discontinuous Galerkin Methods for Optimal Control Problems*, Department of Mathematics, Atılım University, Ankara, December 14, 2016.
- *Numerical simulation of MHD duct flow problems using BEM and DGFEM approaches*, International Conference on Boundary Element and Meshless Techniques - BETEQ 2016, Ankara, July 11-13, 2016.

2015

- *Space-Time Discontinuous Galerkin Finite Element Approximation of Optimal Control Problems*, ENUMATH 2015 Conference, Ankara, September 14-18, 2015.
- *Fractional Allen-Cahn Equations*, 26th Biennial Numerical Analysis Conference, Glasgow, June 23-26, 2015.

- *Adaptive Symmetric Interior Penalty Galerkin Method for Boundary Control Problems*, Workshop on Numerical Methods for Optimal Control and Inverse Problems, Munich, March 09-11, 2015.

2014

- *Adaptive discontinuous Galerkin methods for convection dominated optimal control problems*, Lothar-Collatz-Seminar, Hamburg, December 16, 2014.
- *Unsteady optimal control problems arising from chemical processes*, 4th European Seminar on Computing (ESCO 2014), Pilsen, June 15 - 20, 2014.
- *Adaptive discontinuous Galerkin approximation of optimal control problems governed by transient convection-diffusion equations*, International Conference on Applied Mathematical Optimization and Modelling (APMOD Conference 2014), Coventry, April 9-11, 2014.
- *Adaptive discontinuous Galerkin approximation of optimal control problems governed by transient convection-diffusion equations*, Workshop on Numerical Methods for Optimal Control and Inverse Problems, Munich, March 03-05, 2014.

2013

- *Convection dominated optimal control problems arising from chemical processes*, Center Dynamic Systems (CDS): Biosystems Engineering, CDS Status Seminar, Magdeburg, November 20, 2013.
- *Optimal control problems governed by a system of convection-diffusion PDEs with nonlinear reaction terms*, Institute of Applied Mathematics, METU, Ankara, October 1, 2013.
- *Distributed optimal control problems governed by coupled convection dominated PDEs with control constraints*, ENUMATH 2013 Conference, Lausanne, August 26-30, 2013.
- *Adaptive discontinuous Galerkin (DG) methods for state constrained optimal control problems governed by convection dominated equations*, European Conference on Computational Optimization (EUCCO), Chemnitz, July 17-19, 2013.
- *Optimal control problems governed by a system of convection-diffusion PDEs with nonlinear reaction terms*, Workshop on Numerical Methods for Optimal Control and Inverse Problems, Munich, March 11-13, 2013.

2012

- *Adaptive discontinuous Galerkin methods for advection dominated optimal control problems*, International Research Training Group IGDK, TU Munich, Munich, July 13, 2012.

- *Adaptive discontinuous Galerkin methods for advection dominated optimal control problems*, Colloquium of the Modeling, Numerics, Differential Equations Group, TU Berlin, Berlin, June 12, 2012.
- *Adaptive discontinuous Galerkin methods for advection dominated optimal control problems*, Mathematical Optimization and Applications in Biomedical Sciences, Karl-Franzens-Universitt, Graz, March 23, 2012.

2011

- *Distributed optimal control of diffusion-convection-reaction equations using discontinuous Galerkin methods*, ENUMATH 2011 Conference, Leicester, September 5-9, 2011.

2009

- *Distributed optimal control of unsteady Burgers and convection-diffusion-reaction equations using COMSOL Multiphysics*, Computational Techniques for Optimization Problems subject to Time-Dependent PDEs, Brighton, December 14-16, 2009.

Participation in International Scientific Meetings:

- Finite Element Rodeo 2011, College Station, Texas, February 25-26, 2011.
- Winterschool on Hierarchical Matrices, Max-Planck-Institute for Mathematics in the Sciences, Leipzig, March 2-6 2009.

TEACHING EXPERIENCE

Middle East Technical University, Ankara, TURKEY

Lecturer

- IAM 527 Advanced Calculus and Integration
- IAM 561 Introduction to Scientific Computing I
- IAM 562 Introduction to Scientific Computing II
- IAM 572 Finite Element Methods for Partial Differential Equations: Theory and Applications
- IAM 760 Special Topics: Model Order Reduction
- IAM 765 Special Topics: Advances topics in Finite Elements
- IAM 770 Special Topics: Discontinuous Galerkin Methods

- Math 120 Calculus of Functions of Several Variables

Teaching Assistant

- MATH 119 Calculus With Analytic Geometry Functions
- MATH 120 Calculus for Functions of Several Variables
- MATH 219 Introduction to Differential Equations
- MATH 250 Advanced Calculus in Statistics
- MATH 254 Introduction to Differential Equations
- MATH 480 Numerical Methods for Differential Equations

TED University, Ankara, TURKEY

Lecturer

- Math 102 Multivariable Calculus
- Math 112 Introduction to Multivariable Calculus and Linear Algebra

SUPERVISED
STUDENTS

- MSc Thesis
 - Özgün Murat Arslantaş (Co-Advisor)
 - * **Institution** : Scientific Computing Program, Institute of Applied Mathematics, Middle East Technical University, Ankara, TURKEY
 - * **Year** : June 2015
 - * **Title** : Multigrid Methods for Optimal Control Problems Governed by Convection-Diffusion Equations
- Interns (Max Planck Institute)
 - Özgün Murat Arslantaş
 - * **Institution** : Middle East Technical University, Ankara
 - * **Visiting Period** : April 2014 - June 2014
 - * **Title** : Multigrid Methods for Convection Dominated Optimal Control Problems
 - Ulviyya Ibrahimli
 - * **Institution** : Middle East Technical University, Ankara
 - * **Visiting Period** : July 2013 - September 2013
 - * **Title** : Implementation of Discontinuous Galerkin Methods

ACADEMIC
MEMBERSHIPS

Society for Industrial and Applied Mathematics (SIAM)
The Continuous Optimization Working Group of EURO (EUROPT)

REFERENCES

References available upon request.